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**FACSIMILE TRANSMITTAL SHEET**

May 30, 2003

TO: Examiner S. CHUNDURU  
Group Art Unit 1637  
U.S. Patent & Trademark Office  
FACSIMILE NO.: (703) 872-9306 (Non-Fee Amendment)  
FROM: David M. Tener, Esq.  
NO. OF PAGES: 6 (Including Cover)  
Our Reference No.: E1047/20044

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**FACSIMILE TRANSMISSION CERTIFICATION**

I hereby certify that this correspondence (including the attached Request for Reconsideration) regarding the application identified below, is being transmitted via facsimile to the United States Patent and Trademark Office on this 30<sup>th</sup> day of May, 2003.

  
David M. Tener, Reg. No. 37,054

Applicant(s): Glen-H. ERIKSON et al.

Serial No: 09/664,827

Group Art Unit: 1637

Filed: September 19, 2000

Examiner: S. Chunduru

Att. Docket No.: E1047/20044

Confirmation No.: 4947

For: QUADRUPLEX AND DUPLEX PROBE SYSTEM

## PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
PATENT EXAMINING OPERATION

Applicant(s): Glen H. ERIKSON et al.

Serial No: 09/664,827

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Filed: September 19, 2000

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Att. Docket No.: E1047/20044

Confirmation No.: 4947

For: QUADRUPLIX DNA AND DUPLEX PROBE SYSTEMS

REQUEST FOR RECONSIDERATIONMail Stop Non-Fee Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated March 11, 2003, favorable reconsideration is respectfully requested in view of the following remarks. Claims 1-52 are pending, with claims 26-49 and 52 being withdrawn from consideration pursuant to a restriction requirement.

Claims 1-5, 7, 11-13, 15, 19-22 and 50-51 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Deng et al. (Biopolymers, Vol. 35, No. 6, pp. 677-81, 1995). This rejection is respectfully traversed.

As indicated by its title, Deng et al. discloses "Duplex to Quadruplex Equilibrium of the Self-Complementary Oligonucleotide d(GGGGCCCC)." The quadruplex conformation of the equilibrium is depicted in Fig. 3 of Deng et al. This quadruplex consists of "several G quartets [stacked] upon each other to form a quadruplex structure." Deng et al. at p. 667, column 1, paragraph 1.

Applicants' base claim 1, on the other hand, specifies a multiplex structure comprising first and second strands associated by Watson-Crick bonding, and third and fourth strands associated by

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Watson-Crick bonding, wherein the fourth strand is also associated with the second strand by Watson-Crick bonding.

Fig. 3 of Deng et al. suggests that the four strands of the quadruplex are associated solely by Hoogsteen base pairing, not Watson-Crick bonding. None of the guanosines of any one strand are bonded to the cytosines of another strand of the quadruplex structure shown in Fig. 3, as would be the case for Watson-Crick bonding. Therefore, Deng et al. fails to identically meet all the limitations of the claimed invention, and does not anticipate the invention of base claim 1 and dependent claims 2-5, 7, 11-13, 15, 19-22 and 50-51.

Claim 11 further distinguishes over Deng et al. by requiring that each nucleobase in the second sequence and the fourth sequence binds to two other nucleobases. It is clear from Fig. 3 of Deng et al. that none of the cytosines of any one of the four strands binds to any of the nucleobases of any of the other three strands.

Claim 13 further distinguishes over Deng et al. by specifying that the multiplex is substantially free of Hoogsteen bonding. The first sentence of Deng et al. describes how "four-hydrogen bonded guanine bases associate via Hoogsteen base pairing" in the G-quartet motif that is the basis of the disclosed quadruplex.

Claim 50 further distinguishes over Deng et al. by specifying that the first strand is associated with the third strand by Watson-Crick bonding. As shown above, Fig. 3 of Deng et al. suggests that the four strands of the quadruplex are associated solely by Hoogsteen base pairing, not Watson-Crick bonding.

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Accordingly, reconsideration and withdrawal of the anticipation rejection over Deng et al. are respectfully requested.

Claims 6, 8-10, 14, 16-18 and 23-25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Deng et al. in view of U.S. Patent No. 6,420,115 to Erikson et al. This rejection is respectfully traversed.

Deng et al. fails to identically disclose all the limitations of dependent claims 6, 8-10, 14, 16-18 and 23-25 for at least the same reasons (noted above) that it fails to identically disclose all the limitations of base claim 1.

Erikson et al. is a patent disclosing and claiming Applicants' invention in triplex complexes and associated uses. See, e.g., Erikson et al. at column 1, lines 10-15.

Contrary to the assertion in the Office Action, a person of ordinary skill in the art would not have been motivated to combine the references to reach the claimed invention with a reasonable expectation of success. While the Office Action purports to "combine the multiplex structure as taught by Deng et al. with the multiplex forming parameters as taught by Erikson et al." nothing about the multiplex structure taught by Deng et al. is actually combined with the teachings of Erikson et al. other than the basic concept of joining four strands to form a quadruplex.

The proposed modifications to the teachings of Deng et al. are too substantial to have motivated one skilled in the art with a reasonable expectation of success. Deng et al. teaches that quadruplexes of Hoogsteen-bonded G-quartets exist, providing absolutely no suggestion that Watson-Crick quadruplexes could be created. The Office Action proposes to remedy this deficiency

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of Deng et al. by substituting the binding scheme and parameters of Erikson et al. for those of Deng et al. In other words, the Office Action proposes to cite Deng et al. for teaching a quadruplex while at the same time eliminating from the combined teachings of Deng et al. everything about the structure of the quadruplex.

As in the case of In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984), the Office is improperly reconfiguring the structure taught by the primary reference to combine references for what they do not teach. In Gordon, the court reversed an obviousness rejection based on a combination which included a prior art filter-separator, which was physically inverted in the combination, thereby eradicating the function taught by the prior art. Likewise, the Office should withdraw the present obviousness rejection as being based on an unsupported interpretation of the teachings of the primary reference, Deng et al. One of ordinary skill in the art would not have been motivated with a reasonable expectation of success to modify the teachings of Deng et al. to reach a quadruplex based on a bonding motif totally antithetical to the Hoogsteen binding motif taught by Deng et al. Such motivation is not provided by Erikson et al., which clearly distinguishes the Watson-Crick binding motif from the Hoogsteen binding motif in passages such as the following from column 4, lines 44-47:

[T]he interaction between the probes and targets is based on Watson-Crick base pairing . . . rather than the very limited Hoogsteen model.

The Office Action at page 6 quotes column 6, lines 40-56 of Erikson et al. as motivation for the proposed modification, because the quoted passage allegedly teaches the advantages of

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"Watson-Crick multiplexes" over "Hoogsteen-type multiplexes". The language quoted in the Office Action at page 6 is not an accurate reproduction of what appears in Erikson et al. The actual passage from Erikson et al. relates to triplexes, and the term "multiplex" never appears therein. Thus, the Office Action fails to sustain the Office's initial burden of showing how Erikson et al., or any other art, would have motivated one of ordinary skill in the art to modify the teachings of Deng et al. to reach the claimed invention with a reasonable expectation of success. See, e.g., MPEP 2142.

Accordingly, reconsideration and withdrawal of the obviousness rejection over Deng et al. in view of Erikson et al. are respectfully requested.

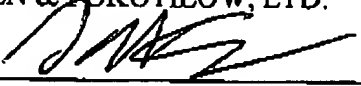
For at least the reasons set forth above, it is respectfully submitted that the above-identified application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are respectfully requested.

Should the Examiner believe that anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

CAESAR, RIVISE, BERNSTEIN,  
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By

  
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May 30, 2003

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